

WHAT IS CLAIMED IS:

1-13 (Canceled)

14. (New) A blood purification device, comprising a duct for the flow of whole blood along which there is a stage for filtering plasma from the whole blood, which is functionally arrangeable in connection to a plasma purification circuit, and a stage for whole blood dialysis by means of plasma purified in said circuit, said stage for whole blood dialysis comprising a selectively permeable interface for separating at least part of the whole blood stream of said duct from a countercurrent stream of plasma purified in said circuit.

15. (New) The blood purification device of claim 14, further comprising a filter, which is constituted by an internal compartment crossed by parallel permeable capillaries, the space inside said capillaries delimiting at least part of said duct for the flow of said whole blood, said internal compartment being divided, in the direction of the extension of said capillaries, into two separate compartments, respectively a first compartment that forms said stage for filtering plasma from whole blood and a second compartment that forms said stage for dialyzing the whole blood by means of purified plasma in countercurrent with respect to the whole blood, said first and second compartments being mutually connected at the region where the countercurrent flow of said purified plasma ends, said first and second compartments being further functionally arrangeable in connection respectively to an input and an output of said plasma purification circuit.

16. (New) The blood purification device of claim 14, wherein said plasma purification circuit is filtered by said stage for filtering plasma from whole blood, which is functionally connected to said stage for dialyzing the whole blood by means of purified plasma, said plasma purification circuit being functionally connected to said duct downstream of both said stage for filtering plasma from whole blood and said stage for dialyzing whole blood by means of purified plasma.

17. (New) The blood purification device of claim 16, wherein said plasma purification circuit comprises a device for removing water-soluble and dialyzable toxic molecules, which is generally used to purify blood but is used to purify plasma that arrives from said stage for filtering plasma  
5 from whole blood.

18. (New) The blood purification device of claim 17, wherein said device for removing water-soluble and dialyzable toxic molecules is composed of modules for performing diffusive processes such as high-flux dialysis, convective-diffusive processes, purely convective processes,  
10 membrane-based adsorptive processes.

19. (New) The blood purification device of claim 18, wherein said device for removing water-soluble and dialyzable toxic molecules comprises a dialyzer that is functionally connected to a dialysate tank, a used dialysate tank, and an infusate tank.

15 20. (New) The blood purification device of claim 16, wherein said plasma purification circuit comprises an adsorptive and/or perfusive purification module, used to purify plasma that arrives from said device for removing water-soluble or dialyzable toxic molecules.

21. (New) The blood purification device of claim 20, wherein said  
20 adsorptive and/or perfusive purification module comprises one or more adsorption columns and/or one or more perfusion columns on carbon.

22. (New) A blood purification method comprising the steps of:  
-- filtering plasma from whole blood,  
-- purifying said plasma filtered from whole blood,  
25 -- purifying said whole blood by flow in countercurrent of a stream of said purified plasma, separated from the stream of said whole blood by a permeable interface.

23. (New) The blood purification method of claim 22, wherein  
-- the plasma used in the countercurrent purification of said whole blood  
30 is joined with the plasma filtered from said whole blood  
-- part of the plasma purified after filtration from whole blood is joined

to the whole blood downstream of the filtering of the plasma from whole blood and of the countercurrent purification.

24. (New) The blood purification method of claim 23, wherein the purification of said plasma filtered from whole blood provides for a step for  
5 removing water-soluble and dialyzable toxic molecules by means of one or more processes in mutual combination, chosen among:

- a diffusive process,
- a convective-diffusive process,
- a purely convective process,
- 10 -- a membrane-based adsorptive process.

25. (New) The blood purification method of claim 24, wherein said processes include:

- high-flux plasma dialysis,
- high-volume plasma filtration,
- 15 -- plasma filtration,
- plasma diafiltration.

26. (New) The blood purification method of claim 25, further comprising, at the end of said step of removing water-soluble and dialyzable toxic molecules, one or more column adsorption processes and/or column  
20 perfusion processes.